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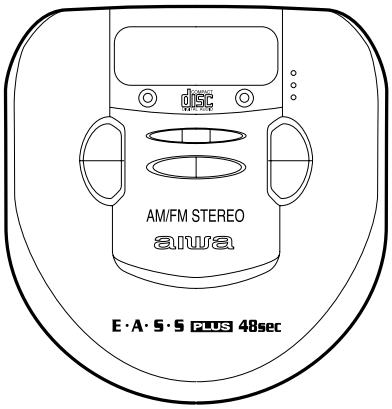
SERVICE

XP-R210 AHA



SERVICE MANUAL

COMPACT DISC PLAYER BASIC CD MECHANISM: DA23L

• This Service Manual is the “Revision Publishing” and replaces “Simple Manual” of XP-R210<AHA>, (S/M Code No. 09-005-426-3T4).

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S/M Code No. 09-006-426-3R3

REVISION DATA

SPECIFICATIONS

Tracking system 3-beam laser
Laser pickup Semiconductor laser
D/A conversion 4-times oversampling digital filter + 1-bit DAC
Frequency Response 20 – 20,000 Hz (47 K ohms)
Output PHONES/LINE OUT jack (stereo mini-jack)
Frequency range AM: 530/531 kHz - 1,710/1,602 kHz (10 kHz/9 kHz steps)
FM: 87.5 - 108 MHz
Maximum output 12 mW + 12 mW (16 ohms at 1 kHz)
500 mV (47 k ohms at 1 kHz)
Power supply DC 3 V using two LR6 (size AA) alkaline batteries
DC 2.4 V using two commercially available (Ni-Cd 1.2 V 700 mAh) rechargeable batteries
AC house current using the supplied AC adaptor

Maximum outside dimensions 128 (W) x 31.2 (H) x 129.5 (D) mm (excluding projecting parts and controls) ($5\ ^1/_8$ x $1\ ^1/_4$ x $5\ ^1/_8$ in.)
Weight Approx. 225 g (7.9 oz.) excluding batteries

AC Adaptor
Rated input For the customer in Argentina
AC -D603HA: 230 V AC, 50 Hz
For the customer except in Argentina
AC-D603 HR: 115/230 V AC, switchable, 50/60 Hz

• Design and specifications are subject to change without notice.

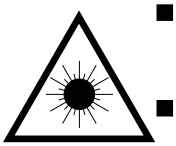
ACCESSORIES / PACKAGE LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-HC1-931-010		IB,LH(E)S
1	8A-HC1-932-010		IB,LH(S)S
1	8A-HC1-933-010		IB,LH(P)S
2	87-B30-265-010		HEADPHONE,HP-M043
3	87-B30-287-010		AC ADAPTOR,AC-D603HANC

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!
Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

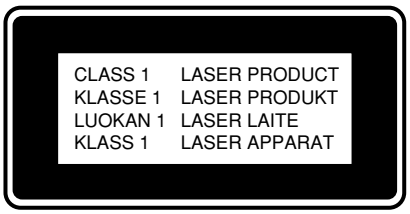
VARNING!
Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!
Usynlig laserstråling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

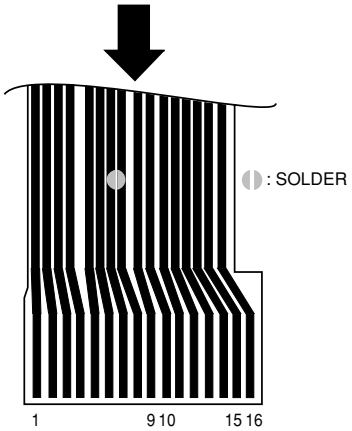
This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

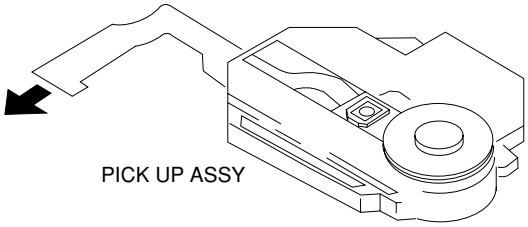


Precaution to replace Optical block (SF-P200)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in the right figure.





ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A21-082-040		C-IC,BA6655AFV
	8A-HC1-605-010		C-IC,MN101C439-AB1
	87-A21-446-010		C-IC,MN662782RPT1
	87-A21-561-040		C-IC,MSM51V17400D-SJ
	87-A21-578-040		C-IC,AN8838NSB
	87-A21-543-040		C-IC,NJU7012
	87-A21-521-040		C-IC,BH6517FS
	87-A21-085-040		C-IC,TA2120FN
	87-A21-558-040		C-IC,LA1827V-TLM
	87-A20-124-080		IC, TK11823
	87-A21-559-040		C-IC,LC72121V-D-TLM
	8A-HC1-604-010		C-IC,UPD789405-AGK-A12-9EU
	87-A21-030-040		C-IC,S-93C46AMFN
TRANSISTOR			
	87-026-608-080		C-TR,DTC 123 JK
	87-A30-075-080		C-TR,2SA1235F
	89-211-323-080		C-TR,2SB1132R
	89-416-643-080		C-TR,2SD1664R
	87-A30-076-080		C-TR,2SC3052F
	89-113-695-680		C-TR,2SA1369G/H
	87-A30-332-040		C-TR,CPH3106
	87-A30-333-040		C-TR,CPH3206
	87-A30-378-040		C-TR,UMG4N
	87-026-210-040		C-TR,DTC144EK
	87-A30-246-040		C-TR,2SA1037AK
	87-A30-336-040		C-TR,UMH4N
	87-026-233-080		TR,DTA114TK-TP
	87-026-239-080		TR,DTC114TK (0.2W)
	87-A30-377-040		C-TR,2SB815B7
	89-324-121-080		C-TR,2SC2412K
	87-026-235-080		CHIP-TR,DTC114EK
	87-A30-328-040		C-TR,IMX9
	87-026-210-080		CHIP-TR,DTC144EK
	89-113-625-080		TR,2SA1362GR(120MHZ,0.
	87-026-297-080		TR,DTA144TK
	89-324-123-080		C-TR,2SC2412K S
	89-327-143-080		TR,2SC2714 (0.1W)
	89-503-025-080		CHIP FET,2SK302 GR
DIODE			
	87-A40-614-040		C-DIODE,SFPB-72
	87-A40-469-080		C-DIODE,HSM2838CTR
	87-A40-592-040		C-ZENER,HZM11NB2
	87-A40-469-040		C-DIODE,HSM2838CTR
	87-A40-590-040		C-DIODE,HRW0202A
	87-020-331-080		CHIP-DIODE,DAN202K
	87-017-520-080		C-DIODE,SFPB52
MAIN C.B			
C101	87-012-286-080		CAP, U 0.01-25
C102	87-A11-031-080		C-CAP,E 100-16 M WX
C103	87-012-286-080		CAP, U 0.01-25
C104	87-016-367-080		C-CAP,E 47-6.3
C201	87-016-431-080		C-CAP,E 220-4 5.5N
C202	87-012-274-080		CHIP CAP,U 1000P-50B
C203	87-012-286-080		CAP, U 0.01-25
C204	87-016-430-080		C-CAP,E 100-6.3 5.5N
C205	83-HC3-635-080		C-CAP,E 220-6.3 WF
C206	87-A12-159-080		C-CAP, 10-6.3 K B GRM42-6
C207	87-010-831-080		C-CAP,U,0.1-16F
C208	87-010-831-080		C-CAP,U,0.1-16F
C209	87-012-172-080		CAPACITOR CHIP U 10P CH
C210	87-012-195-080		C-CAP,U 100P-50CH
C211	87-A10-047-080		C-CAP,U 1-10 Z F
C212	87-012-188-080		C-CAP,U 47P-50 CH
C213	87-A10-047-080		C-CAP,U 1-10 Z F
C214	87-010-831-080		C-CAP,U,0.1-16F
C215	87-A11-063-080		C-CAP,S 4.7-10 Z F
C216	87-A11-063-080		C-CAP,S 4.7-10 Z F
C217	87-010-831-080		C-CAP,U,0.1-16F
C301	87-016-426-080		C-CAP,E 47-4 5.5N
C302	87-012-286-080		C-CAP,U 0.01-25 K B
C303	87-012-286-080		C-CAP,U 0.01-25 K B
C304	87-010-831-080		C-CAP,U,0.1-16F
C305	87-012-286-080		C-CAP,U 0.01-25 K B
C306	87-012-286-080		C-CAP,U 0.01-25 K B
C307	87-012-286-080		CAP, U 0.01-25
C309	87-016-430-080		C-CAP,E 100-6.3 5.5N
C310	87-012-286-080		CAP, U 0.01-25
C311	87-012-274-080		CHIP CAP,U 1000P-50B
C401	87-016-430-080		C-CAP,E 100-6.3 5.5N
C402	87-010-831-080		C-CAP,U,0.1-16F
C403	87-016-085-080		CAP,E 1000-6.3PF
C404	87-010-831-080		C-CAP,U,0.1-16F
C405	87-A10-260-080		C-CAP,U 0.1-16 K B
C406	87-012-273-080		C-CAP,U 820P-50 B
C407	87-010-787-080		CAP, U 0.022-25
C408	87-A10-260-080		C-CAP,U 0.1-16 K B
C409	87-A10-827-080		C-CAP,U 0.47-6.3 K B
C410	87-012-286-080		CAP, U 0.01-25
C411	87-010-831-080		C-CAP,U,0.1-16F
C412	87-016-429-080		C-CAP,E 100-4 5.5N
C413	87-010-831-080		C-CAP,U,0.1-16F
C415	87-010-831-080		C-CAP,U,0.1-16F
C420	87-010-831-080		C-CAP,U,0.1-16F
C422	87-010-831-080		C-CAP,U,0.1-16F
C423	87-010-831-080		C-CAP,U,0.1-16F
C424	87-012-195-080		C-CAP,U 100P-50 J CH
C425	87-012-195-080		C-CAP,U 100P-50 J CH
C451	87-010-831-080		C-CAP,U,0.1-16F
C502	87-010-831-080		C-CAP,U,0.1-16F
C504	87-010-831-080		C-CAP,U 0.1-16F
C505	87-A11-228-080		C-CAP,U 0.027-25 K B
C506	87-012-199-080		CAP 220P
C507	87-012-193-080		C-CAP,U 82P-50 CH
C508	87-012-193-080		C-CAP,U 82P-50 CH
C509	87-012-193-080		C-CAP,U 82P-50 CH
C510	87-016-429-080		C-CAP,E 100-4 M WX
C511	87-010-831-080		C-CAP,U 0.1-16F
C512	87-016-426-080		C-CAP,E 47-4 5.5N
C513	87-010-831-080		C-CAP,U 0.1-16F
C514	87-A11-228-080		C-CAP,U 0.027-25 K B
C515	87-A11-228-080		C-CAP,U 0.027-25 K B
C516	87-A10-260-080		C-CAP,U 0.1-16 K B
C518	87-012-176-080		CAP 15P
C520	87-016-426-080		C-CAP,E 47-4 5.5N
C521	87-012-274-080		CHIP CAP,U 1000P-50B
C522	87-A10-047-080		C-CAP,U 1-10 Z F
C523	87-A10-047-080		C-CAP,U 1-10 Z F
C524	87-012-172-080		CAPACITOR CHIP U 10P CH
C601	87-016-429-080		C-CAP,E 100-4 5.5N
C602	87-012-286-080		CAP, U 0.01-25
C603	87-010-831-080		C-CAP,U,0.1-16F
C604	87-010-831-080		C-CAP,U,0.1-16F
C609	87-010-831-080		C-CAP,U,0.1-16F
C610	87-A10-047-080		C-CAP,U 1-10 Z F
C611	87-A10-047-080		C-CAP,U 1-10 Z F
C612	87-010-831-080		C-CAP,U,0.1-16F
C701	87-016-429-080		C-CAP,E 100-4 5.5N
C702	87-012-274-080		CHIP CAP,U 1000P-50B
C703	87-012-274-080		CHIP CAP,U 1000P-50B
C706	87-010-831-080		C-CAP,U,0.1-16F
C707	87-A10-047-080		C-CAP,U 1-10 Z F
C708	87-A10-047-080		C-CAP,U 1-10 Z F

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C709	87-A10-047-080		C-CAP,U 1-10 Z F
C710	87-016-421-080		C-CAP,E 10-16 5.5N
C711	87-016-429-080		C-CAP,E 100-4 5.5N
C712	87-A10-353-080		C-CAP,U0.22-10KB
C713	87-010-831-080		C-CAP,U,0.1-16F
C714	87-A11-062-080		C-CAP,S 2.2-16 Z F
C715	87-016-421-080		C-CAP,E 10-16 5.5N
C716	87-010-831-080		C-CAP,U,0.1-16F
C717	87-010-831-080		C-CAP,U,0.1-16F
C718	87-016-431-080		C-CAP,E 220-4 5.5N
C719	87-016-431-080		C-CAP,E 220-4 5.5N
C720	87-012-274-080		CHIP CAP,U 1000P-50B
C721	87-012-274-080		CHIP CAP,U 1000P-50B
CN301	87-A60-792-080		C-CONN,30P V 30FLT-SM1TB
CN501	87-009-214-080		CONN,16P 52207-1690
CN601	87-099-522-080		CONN,6P ZH-SM3 V W
FB701	83-XM1-617-080		C-COIL,BK2125HM601
FB702	83-XM1-617-080		C-COIL,BK2125HM601
FB703	83-XM1-617-080		C-COIL,BK2125HM601
FB704	83-XM1-617-080		C-COIL,BK2125HM601
J101	87-A60-421-010		JACK,DC HEC3600 BLK 6
J701	85-HC5-616-010		JACK,3.5 ST W/R GRN
L201	88-HC4-615-040		C-COIL,39UH 7006-2M
L301	87-A50-367-080		C-COIL, 10UH LQG21F
L302	87-A50-367-080		C-COIL, 10UH LQG21F
L401	87-A50-556-080		C-COIL, 47UH K LQH3C
L402	87-A50-440-080		C-COIL, 100UH K LQH3C34
L501	87-A50-367-080		C-COIL, 10UH LQG21F
L502	87-A50-367-080		C-COIL, 10UH LQG21F
L601	87-A50-367-080		C-COIL,10UH LQG21F
L610	87-005-843-080		C-COIL,470UH K LQH3C
R222	87-022-246-080		C-RES,U 20K-1/16W F
R224	87-022-239-080		C-RES U 10K-1/16WF
S101	87-A91-622-010		SW,MICRO PV1102
S302	87-A90-494-080		C-SW,SL 1-1-3 SSSS81
S303	87-A90-494-080		C-SW,SL 1-1-3 SSSS81
TC208	87-A91-185-080		C-TRIMMER,CER 30P TZC03
VR701	87-A91-145-080		C-VR,RTRY 30KCX2 H RK14J12R
X301	87-A70-255-080		C-VIB,4.19MHZ CSTRC0419MG03
X401	87-A70-201-080		C-VIB,CER 16.93MHZ CSTCV-MXJ0C

LID C.B

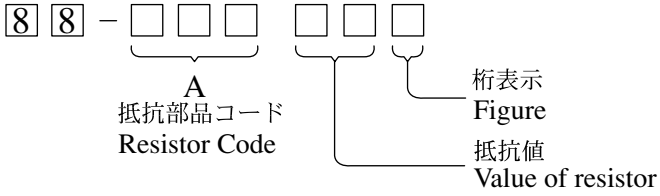
ANT801	8Z-HC1-610-010		ANT,BAR-ANTENNA
BPF801	87-008-406-080		BPF GFMB1
C800	87-012-195-080		C-CAP,U 100P-50CH
C801	87-012-286-080		C-CAP,U 0.01-25
C802	87-012-176-080		CAP 15P
C804	87-012-335-080		C-CAP,U 270P-50 SL
C805	87-012-199-080		CAP 220P
C806	87-010-831-080		C-CAP,U,0.1-16F
C807	87-012-286-080		C-CAP,U,0.01-25 K B
C808	87-012-274-080		C-CAP,U 1000P-50 K B
C809	87-012-176-080		CAP 15P
C810	87-012-176-080		C-CAP,U 15P-50J CH
C811	87-012-184-080		C-CAP,U 33P-50 CH
C812	87-012-176-080		CAP 15P
C813	87-012-186-080		C-CAP,U 39P-50 CH
C814	87-012-274-080		CHIP CAP,U 1000P-50B
C815	87-012-162-080		C-CAP,U 1P-50 CK
C816	87-012-286-080		CAP, U 0.01-25
C817	87-012-274-080		C-CAP,U 1000P-50 K B
C818	87-012-286-080		CAP, U 0.01-25
C819	87-012-286-080		CAP, U 0.01-25
C821	87-012-286-080		CAP, U 0.01-25
C822	87-A10-707-080		C-CAP,U 0.47U-16 F Z
C823	87-A10-707-080		C-CAP,U 0.47U-16 F Z
C824	87-012-278-080		C-CAP,U 2200P-50 B
C825	87-A10-025-080		C-CAP,U 0.22-16Z F
C826	87-A10-707-080		C-CAP,U 0.47U-16 F Z

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C827	87-A11-061-080		C-CAP,S 2.2-10 K B
C828	87-012-286-080		CAP, U 0.01-25
C829	87-012-274-080		CHIP CAP,U 1000P-50B
C831	87-012-274-080		CHIP CAP,U 1000P-50B
C833	87-A11-241-080		C-CAP,TN 22-6.3 M F93 A
C834	87-012-274-080		CHIP CAP,U 1000P-50B
C836	87-012-286-080		CAP, U 0.01-25
C838	87-010-829-080		CAP, U 0.047-16
C841	87-012-286-080		CAP, U 0.01-25
C842	87-012-273-080		C-CAP,U 820P-50 B
C843	87-012-286-080		CAP, U 0.01-25
C844	87-A11-063-080		C-CAP,S 4.7-10 Z F
C845	87-012-274-080		CHIP CAP,U 1000P-50B
C846	87-A11-063-080		C-CAP,S 4.7-10 Z F
C847	87-012-286-080		CAP, U 0.01-25
C848	87-012-286-080		CAP, U 0.01-25
C849	87-A10-047-080		C-CAP,U 1-10 Z F
C850	87-A10-047-080		C-CAP,U 1-10 Z F
C851	87-012-282-080		CAP, U 4700P-50
C852	87-012-282-080		CAP, U 4700P-50
C853	87-012-170-080		C-CAP,U 8P-50 CH
C854	87-012-167-080		C-CAP,U 5P-50 CH
C855	87-012-337-080		C-CAP,U 56P-50 CH
C856	87-A11-063-080		C-CAP,S 4.7-10 Z F
C857	87-012-286-080		CAP, U 0.01-25
C858	87-A11-061-080		C-CAP,S 2.2-10 K B
C859	87-012-286-080		CAP, U 0.01-25
C861	87-A11-063-080		C-CAP,S 4.7-10 Z F
C862	87-A11-061-080		C-CAP,S 2.2-10 K B
C899	87-012-286-080		C-CAP,S 2.2-10 K B
C901	87-012-274-080		CHIP CAP,U 1000P-50B
C903	87-012-286-080		CAP, U 0.01-25
C904	87-012-274-080		CHIP CAP,U 1000P-50B
C905	87-012-274-080		CHIP CAP,U 1000P-50B
C906	87-012-174-080		CAP CHIP CERA SS 12P CHJ
C907	87-012-176-080		CAP 15P
C908	87-A11-063-080		C-CAP,S 4.7-10 Z F
C909	87-012-286-080		CAP, U 0.01-25
C910	87-012-286-080		CAP, U 0.01-25
C911	87-012-286-080		CAP, U 0.01-25
C912	87-012-188-080		C-CAP,U 47P-50 CH
C913	87-012-286-080		CAP, U 0.01-25
C914	87-A11-158-080		C-CAP,TN 4.7-16 M A F93
C915	87-012-275-080		C-CAP,U,1000P-50 K B GRM
C916	87-A11-063-080		C-CAP,S 4.7-10 Z F
C918	87-A11-063-080		C-CAP,S 4.7-10 Z F
C935	87-012-274-080		CHIP CAP,U 1000P-50B
C936	87-012-274-080		CHIP CAP,U 1000P-50B
C937	87-012-274-080		CHIP CAP,U 1000P-50B
C941	87-A11-063-080		C-CAP,S 4.7-10 Z F
C942	87-012-286-080		CAP, U 0.01-25
C943	87-012-286-080		CAP, U 0.01-25
C944	87-012-286-080		CAP, U 0.01-25
C945	87-012-286-080		CAP, U 0.01-25
C946	87-012-286-080		CAP, U 0.01-25
C947	87-A11-063-080		C-CAP,S 4.7-10 Z F
C948	87-012-286-080		CAP, U 0.01-25
CF801	87-A91-352-080		C-FLTR,SFECV 10.7MS2-A
CF802	87-A91-352-080		C-FLTR,SFECV 10.7MS2-A
CF803	87-A90-456-080		C-FLTR,PFWCC 450J3
CF804	8Z-HC1-612-080		C-FLTR,CDACV 10.7MG83-A
D802	87-A40-517-040		C-VARI-CAP,SVC208
D803	87-A40-517-040		C-VARI-CAP,SVC208
D804	87-A40-462-040		C-VARI-CAP,SVC347(S)
IFT803	87-005-788-080		C-IFT,AM (450K)
L801	8A-HC1-613-010		COIL,FM OSC-AHC1
L802	8A-HC1-612-010		COIL,FM RF-AHC1
L804	87-003-247-080		C-COIL,100UH
L805	87-A50-037-080		C-COIL,D-D 5CDLU
L807	87-A50-536-080		C-COIL,10UH K LQH3C24

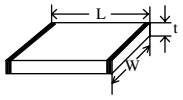
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
L808	87-A50-536-080		C-COIL,10UH K LQH3C24
L901	87-A50-536-080		C-COIL,10UH K LQH3C24
L902	87-A50-536-080		C-COIL,10UH K LQH3C24
LCD901	8A-HC1-610-010		LCD,AHC-1
LED902	87-A91-327-040		C-LED,SEC1703C GRN
LED903	87-A91-328-040		C-LED,SEC1803C ORN
LED904	87-A91-326-040		C-LED,SEC1603C RED
SW901	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW902	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW903	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW904	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW905	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW906	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW907	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW908	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW909	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW910	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW911	87-A91-668-080		C-SW,TACT EVQ-PQH-B55
SW920	87-036-379-180		C-SW,SL1-1-2 SS350
TC801	87-A91-185-080		C-TRIMMER,CER 30P TZC03
X801	87-A70-259-010		VIB,XTAL 4.5MHZ CSA-309
X901	87-A70-255-080		C-VIB,4.19MHZ CSTRC0419MG03

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

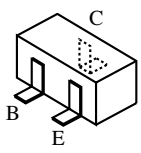
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



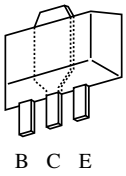
チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm) 外形／Form	L	W	t	抵抗コード : A Resistor Code : A
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

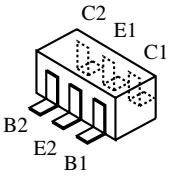
TRANSISTOR ILLUSTRATION



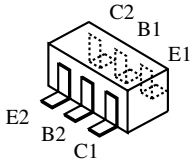
2SA1037AK
2SA1235F
2SA1362GR
2SC2412K
2SC2412K S
2SC2714
2SC3052F
CPH3106



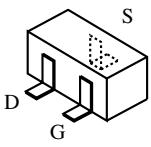
CPH3206
DTA114TK
DTA114TK-TP
DTC114EK
DTC114TK
DTC123JK



2SA1369
2SB1132
2SD1664

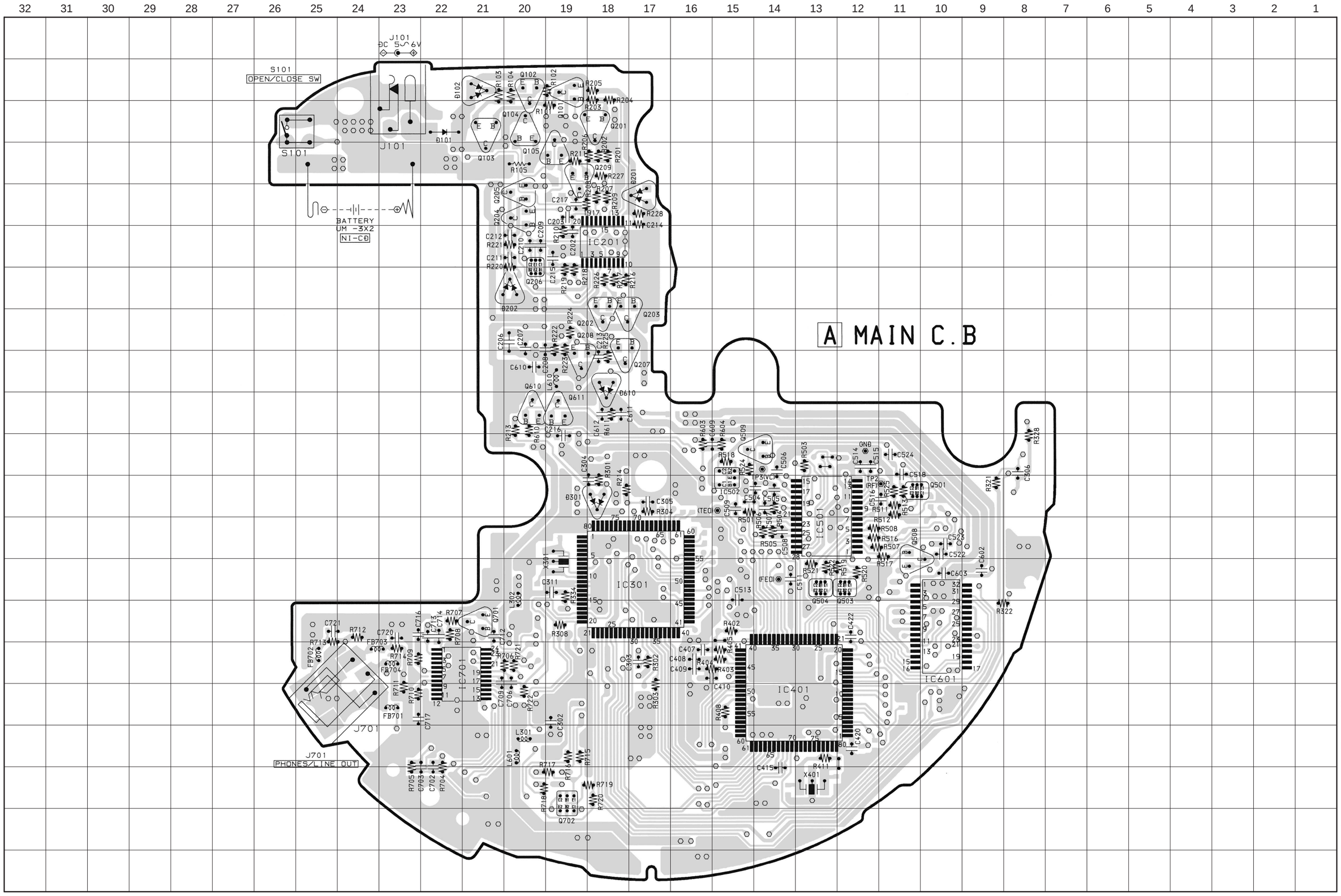


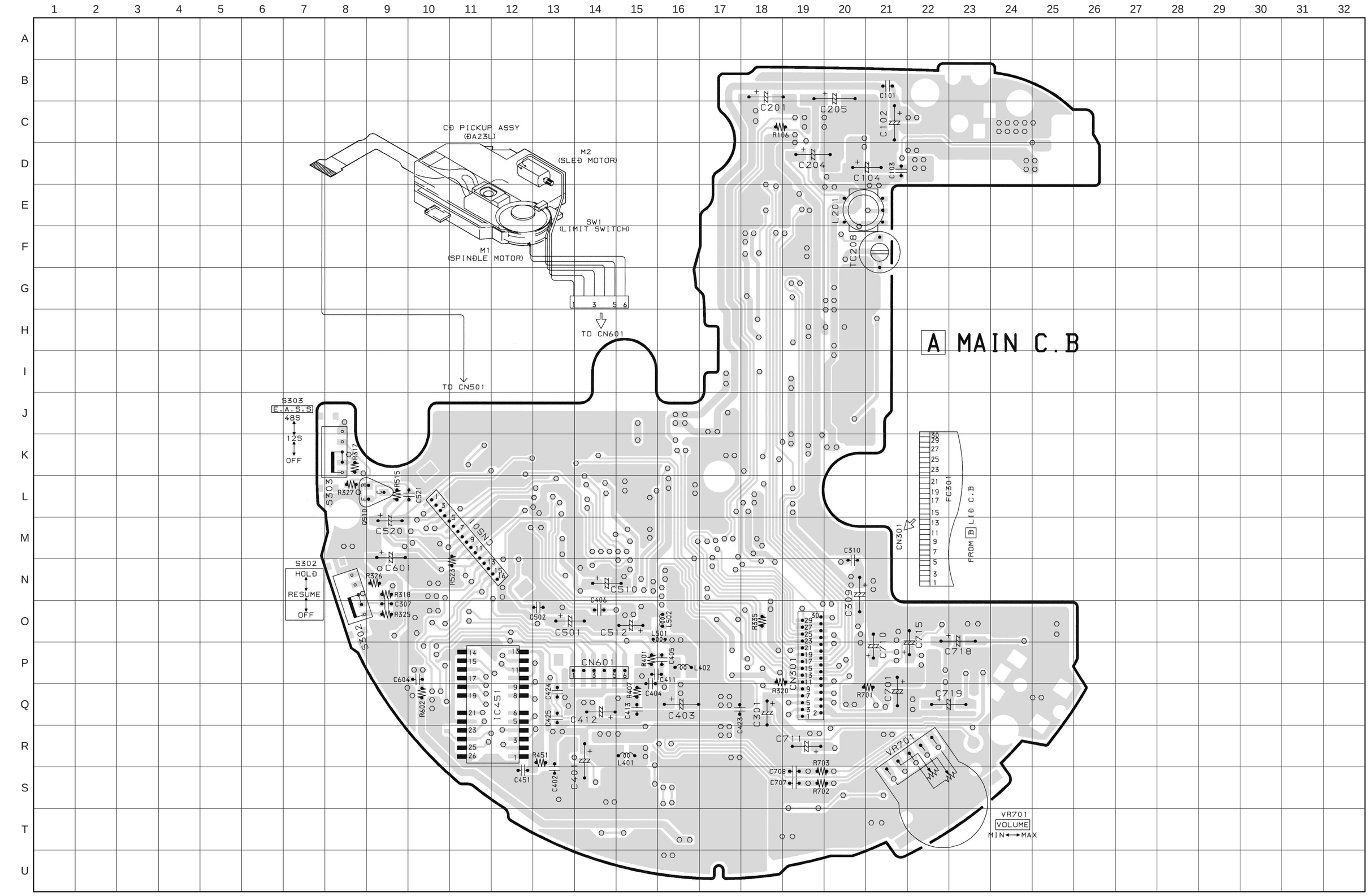
UMG4N



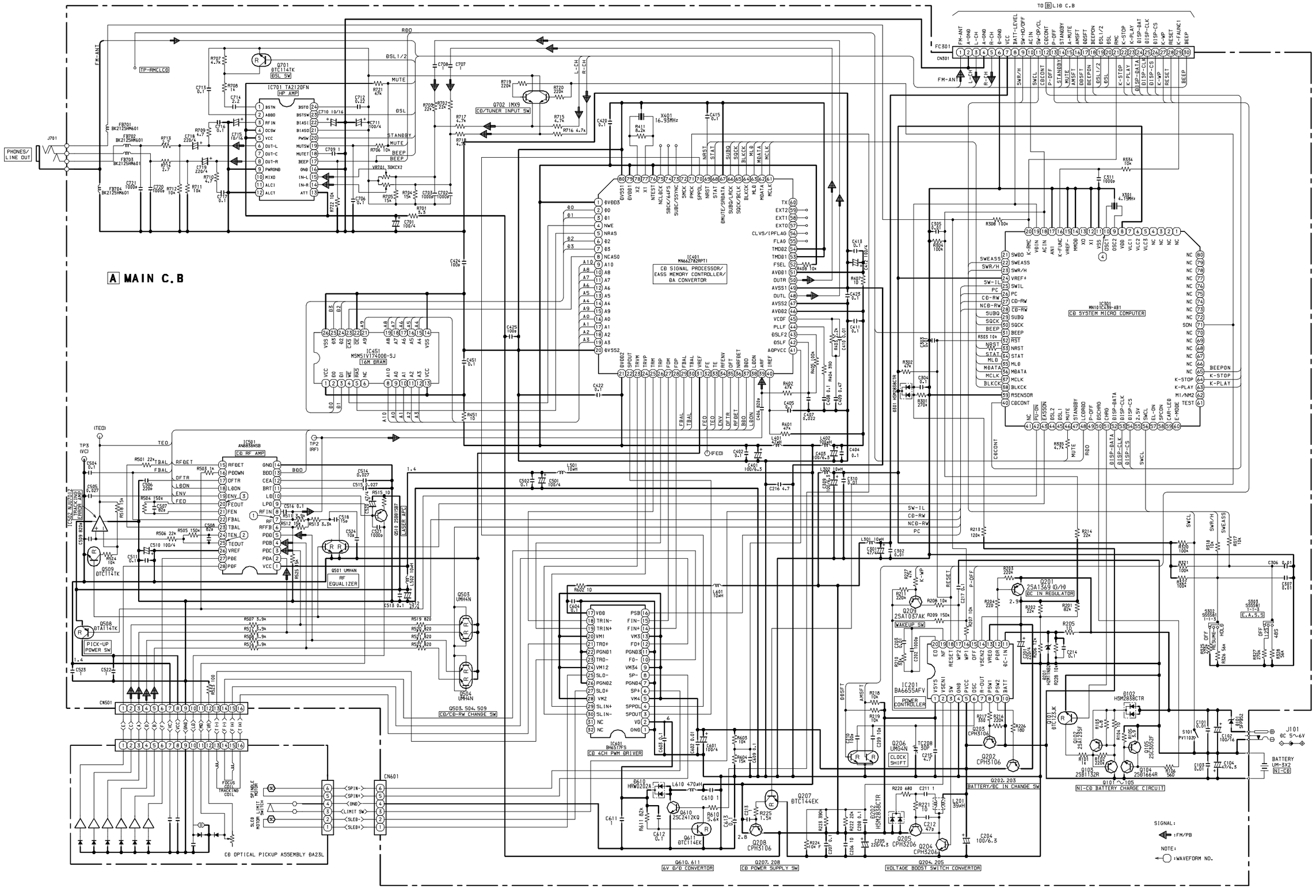
UMH4N
IMX9

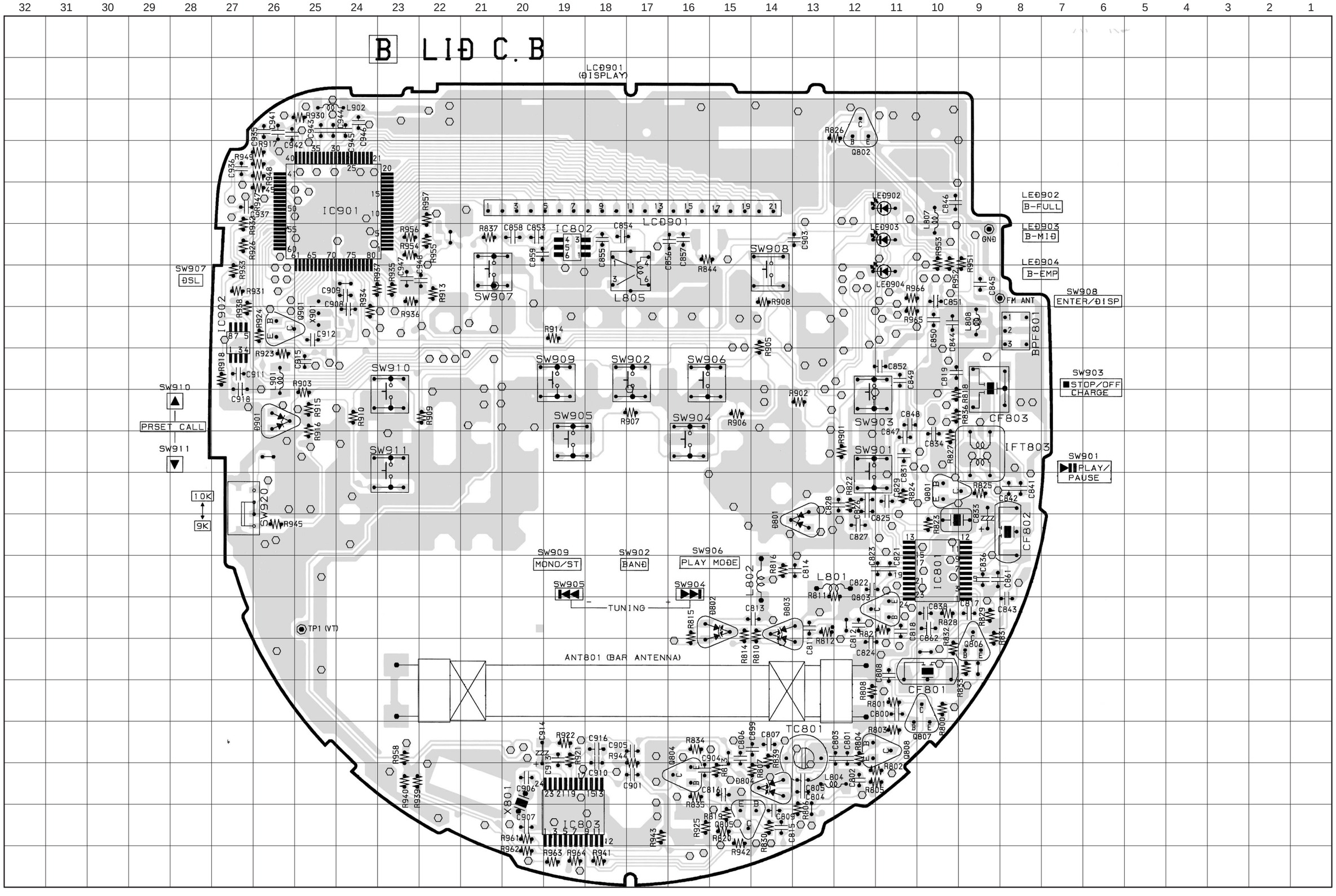
2SK302GR


A MAIN C.B
J101
DC 5V~6V
S101
OPEN/CLOSE SW
BATTERY
UM -3X2
NI-CD
J701
PHONES/LINE OUT
IC201
IC301
IC401
IC501
IC601
IC701
Q102
Q104
Q105
Q103
Q201
Q209
Q205
Q206
Q202
Q203
Q207
Q610
Q611
Q509
Q501
Q508
Q504
Q503
Q702
D101
D102
D202
D301
D610
C217
C203
C214
C212
C210
C209
C211
C215
C206
C207
C610
C611
C304
C305
C306
C513
C524
C518
C523
C522
C603
C602
C422
C407
C408
C409
C410
C415
C420
C302
C301
C311
C709
C706
C717
C716
C713
C714
C712
C721
C720
R103
R104
R102
R101
R205
R204
R203
R206
R202
R201
R209
R227
R207
R208
R228
R210
R221
R220
R219
R218
R226
R225
R217
R216
R224
R222
R223
R213
R610
R216
R214
R603
R604
R518
R524
R506
R503
R328
R321
R322
R511
R512
R508
R516
R507
R517
R520
R513
R525
R402
R405
R404
R403
R408
R411
R334
R308
R302
R303
R301
R707
R712
R713
R708
R706
R721
R709
R714
R710
R711
R722
R705
R703
R702
R704
R717
R716
R715
R719
R718
R720
L410
L301
L302
L601
FB702
FB703
FB704
FB701
X301
X401
TP3(VC)
TP2
(TEO)
(FEO)
GND

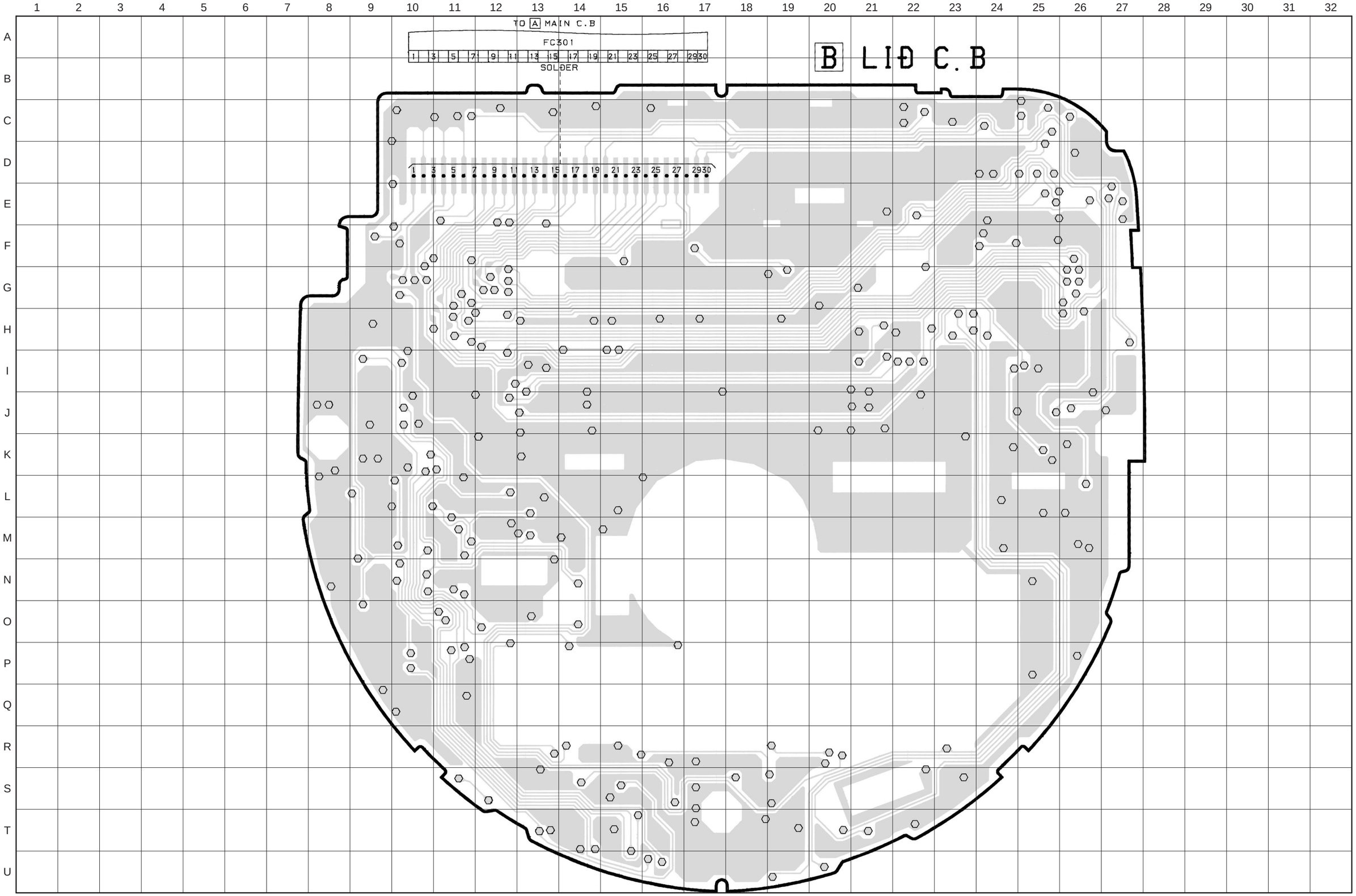

CD PICKUP ASSY
(DA23L)
M2
(SLED MOTOR)
SW1
(LIMIT SWITCH)
M1
(SPINDLE MOTOR)
1 3 5 6
TO CN601
TO CN501
A MAIN C.B
S303
E.A.S.S
48S
12S
OFF
S302
HOLD
RESUME
OFF
CN501
CN601
CN301
IC451
C201
C205
C101
C102
C204
C104
C103
L201
TC208
R106
C520
C601
C510
C501
C512
C502
C406
L502
L501
C405
L402
C404
C403
C412
C411
C424
C425
C423
C301
C451
C402
C401
L401
R451
C604
R602
R401
R407
R320
R701
C701
C711
C708
C707
R703
R702
VR701
VOLUME
MIN ↔ MAX
C310
C309
C710
C715
C718
C719
R335
R326
R318
C307
R325
R327
R317
R515
C521
Q510
R523
CN301
FG301
FROM B LID C.B

SCHEMATIC DIAGRAM - 1 (MAIN)

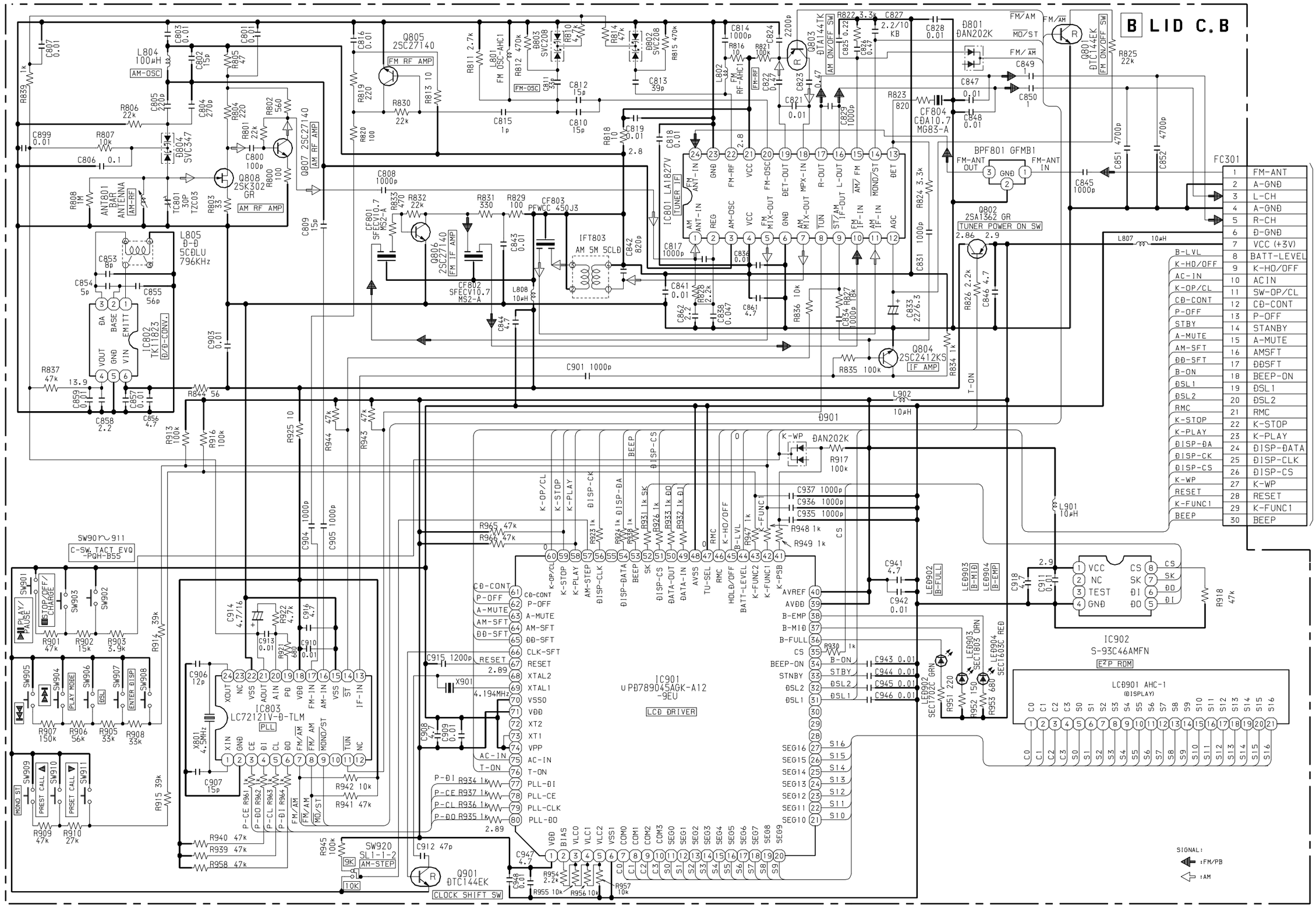



B LIÐ C.B
LCÐ901 (ÐISPLAY)
IC901
IC902
IC802
IC803
IC801
TC801
L805
L802
L801
L804
X801
X901
Q901
Q802
Q803
Q806
Q807
Q808
Q801
Q804
Q805
D801
D802
D803
LEÐ902
LEÐ903
LEÐ904
B-FULL
B-MIÐ
B-EMP
SW907 ÐSL
SW908 ENTER/ÐISP
SW903 ■STOP/OFF CHARGE
SW901 ▶II PLAY/ PAUSE
SW910 ▲ PRSET CALL ▼ SW911
10K
9K
SW920
SW909 MONO/ST
SW902 BANÐ
SW906 PLAY MOÐE
SW905 ⏮ − TUNING + ⏭ SW904
TP1 (VT)
ANT801 (BAR ANTENNA)
FM ANT
GNÐ
BPF801
CF803
CF802
CF801
IFT803

WIRING - 2 (LID: 2 / 2)

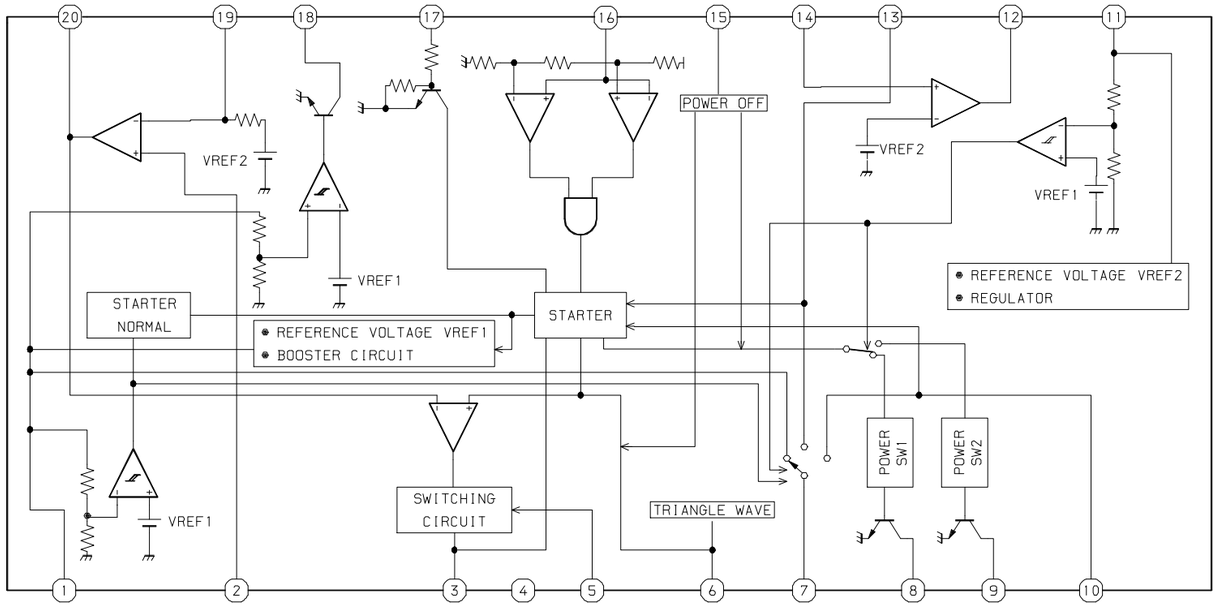


SCHEMATIC DIAGRAM - 2 (LID)

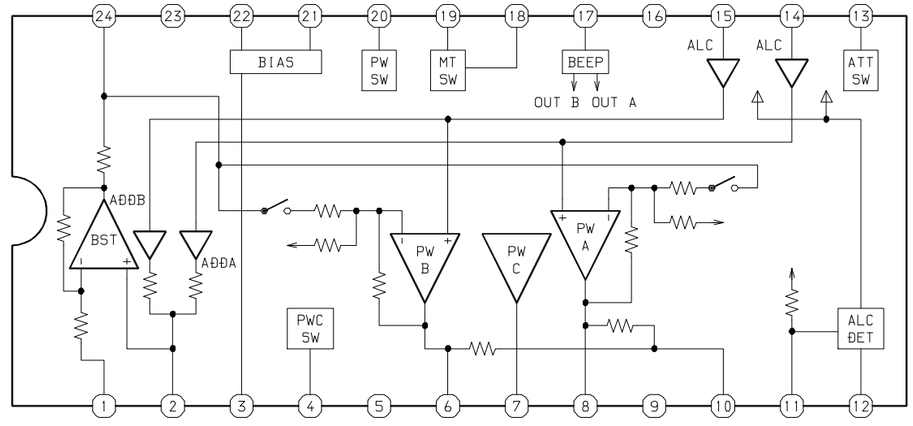


IC BLOCK DIAGRAM

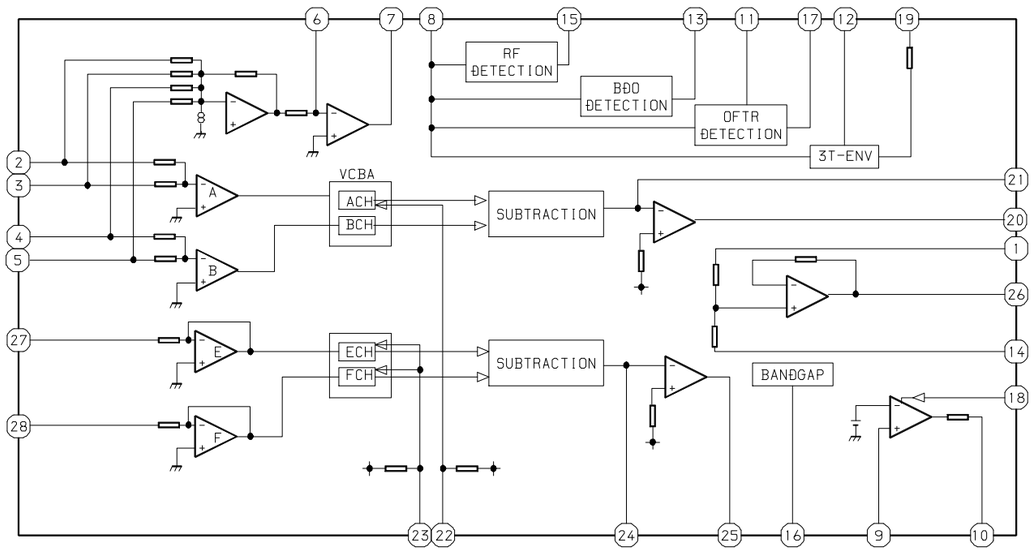
BA6655AFV



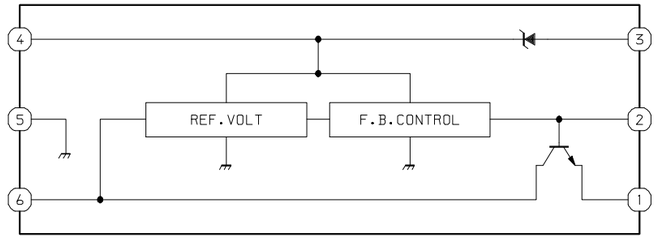
IC, TA2120FN



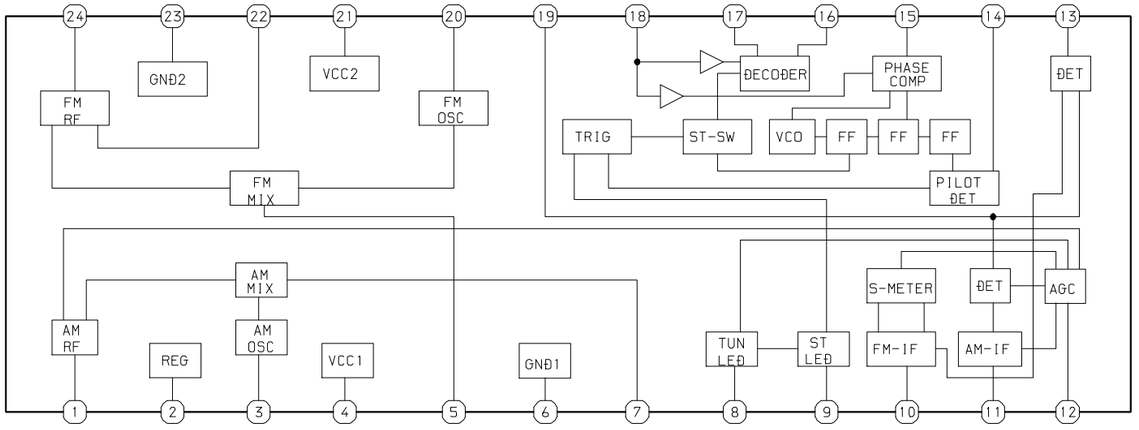
AN8838SB



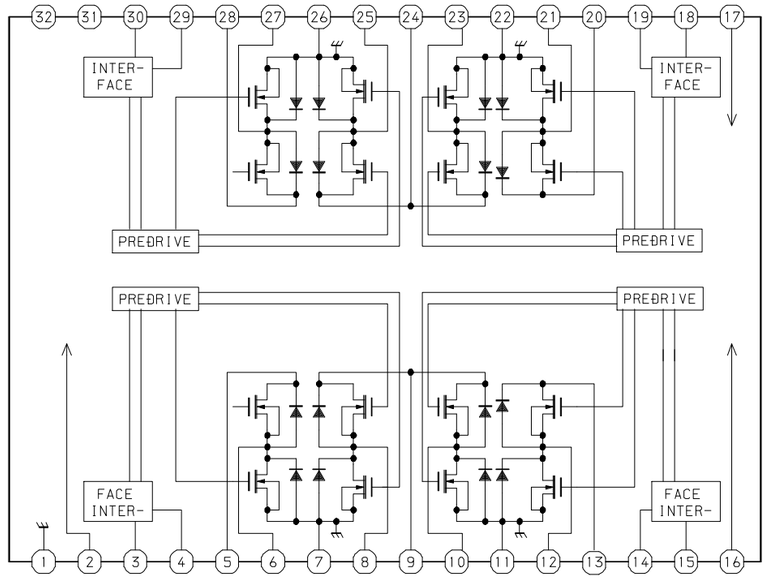
TK11823



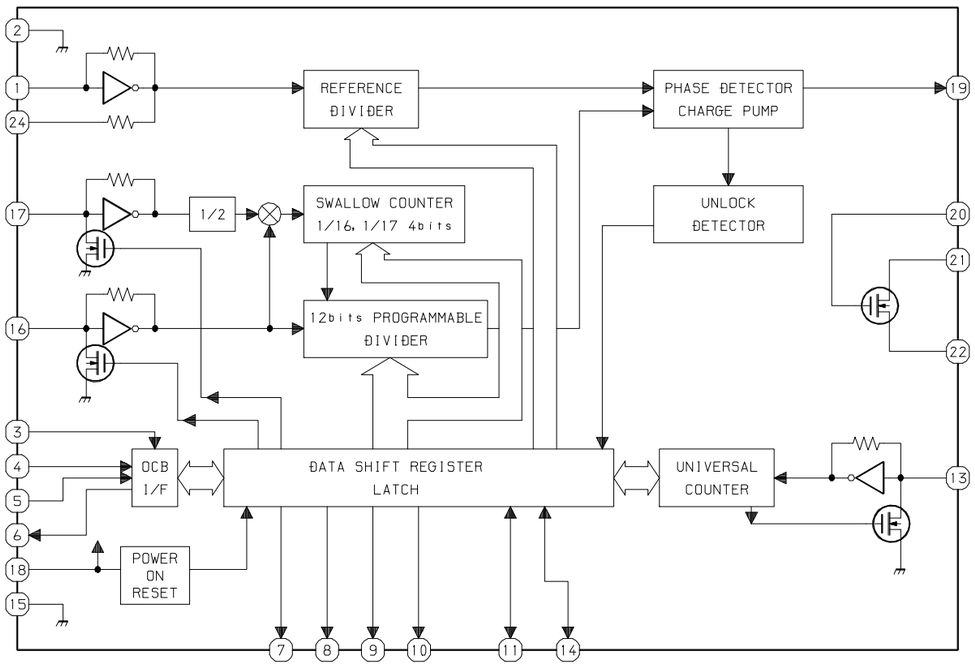
IC, LA1827M-TLM



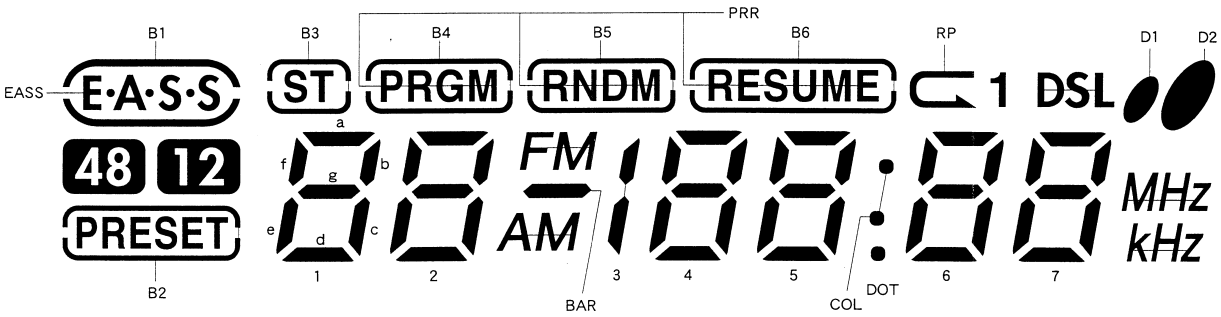
BH6517FS



LC72121V-Ð-TLM



LCD DIAGRAM

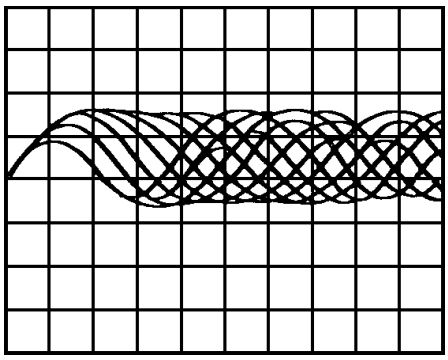


No	1	2	3	4	5	6	7	8	9	10	11
COM0	COM0	——	——	——	PRR	ST	B3	1a	B4	2a	B5
COM1	——	COM1	——	——	EASS	B1	1f	1b	2f	2b	FM
COM2	——	——	COM2	——	48	12	1e	1g	2e	2g	BAR
COM3	——	——	——	COM3	PRESET	B2	1d	1c	2d	2c	AM

No	12	13	14	15	16	17	18	19	20	21
COM0	3	4a	B6	5a	RP	——	6a	DSL	7a	D1
COM1	4f	4b	5f	5b	1	6f	6b	7f	7b	D2
COM2	4e	4g	5e	5g	COL	6e	6g	7e	7g	MHz
COM3	4d	4c	5d	5c	DOT	6d	6c	7d	7c	kHz

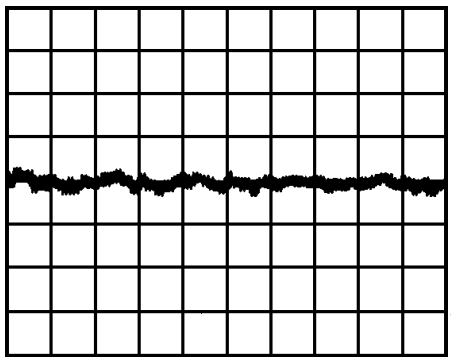
WAVEFORM

①IC501 PIN 7 (RF)



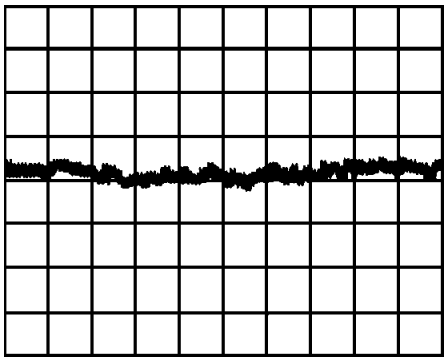
0.5 V/div
0.2 µs/div

③IC501 PIN 20 (FEOUT)



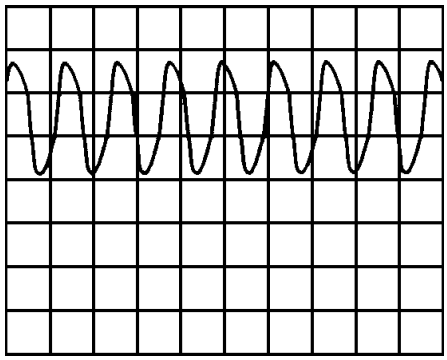
50 mV/div
1 ms/div

②IC501 PIN 25 (TEOUT)



50 mV/div
1 ms/div

④IC301 PIN 10 (OSC1)



1 V/div
50 ns/div

IC DISCRIPTION

IC,MN101C439-AB1

Pin No.	Pin Name	I/O	Description
1 ~ 4	NC	-	Not connected.
5 ~ 7	VLC3 ~ 1	-	LCD Voltage divider resistor3 ~ 1 (Not used.)
8	VDD	-	Micro-computer power voltage (2.8 V).
9	OSC2	O	Main clock oscillator (4.2336 MHz).
10	OSC1	I	Main clock oscillator (4.2336 MHz).
11	VSS	-	Micro-computer GND.
12	XI	I	Sub clock input GND (Not used).
13	XO	O	Sub clock output (Not used).
14	MMOD	I	Memory mode switch input (Single chip mode).
15	VREF-	-	A/D converter GND.
16	K-FUNC	I	Function key input.
17	AN1	I	Connected to GND.
18	AC IN	I	AC adaptor detection terminal.
19	VD IN	I	Battery voltage measuring terminal.
20	K-RMC	I	Wired remote control input terminal.
21	SWD0	I	Digital out “ON/OFF” input (Not used).
22	SWEASS	I	EASS mode. SW input terminal.
23	SWR/H	I	RESUME/HOLD SW input terminal.
24	VREF+	-	Connected to VDD.
25	SWIL	I	Limit SW input.
26	PC	I	CD servo driver power OFF output. “L” power OFF.
27	CD-RW	O	CD-RW PLAYBACK gain up seletion output. “H” = Gain up.
28	$\overline{\text{CD-RW}}$	O	CD-RW PLAYBACK gain up seletion output. “L” = Gain up.
29	SUBQ	I	DSP sub-code Q input.
30	SQCK	O	DSP sub-code clock output.
31	BEEP	O	Buzzer output for headphone.
32	$\overline{\text{RST}}$	-	Micro-computer reser input.
33	NRST	O	DSP RESET output.
34	STAT	I	DSP STAT input.
35	MLD	O	DSP MLD output.
36	MDATA	O	DSP MDATA output.
37	MCLK	O	DSP BLKCK input.
38	BLKCK	I	DSP BLKCK input.
39	RSENSOR	I	Connected to GND.
40	CDCONT	I	CD/Tuner mode input.
41	IRQ3	I	Not connected.
42	$\overline{\text{PU-ON}}$	O	H/A power down output.
43	$\overline{\text{EASSON}}$	O	Gain up in EASS selection output. EASS on = “L”
44	DSL2	O	Not used.
45	DSL1	O	Not used.

Pin No.	Pin Name	I/O	Description
46	MUTE	O	Audio mute output.
47	STANDBY	O	Not used.
48	LCDRDO	O	Wired LCD remote control output.
49	P-OFF	O	Not used.
50	DSCHRG	O	Electric discharge output.
51	CHRG	O	Electric charge output.
52	DISP-DATA	O	LCD display data output.
53	DISP-CLK	O	LCD display data clock output.
54	DISP-CS	O	LCD display data chip selection output.
55	SEG25	O	Not used.
56	SWCL	I	Cover OPEN/CLOSE detection SW input.
57	EL-ON	O	EL back light control output.
58	SPCON	O	Spindle PWM control output.
59	CAR-LED	O	CAR-KIT model button LED light on output, “H” = Light ON
60	E-MODE	I	Control spindle shaft votation (EASS only), “L” = Control spindle shaft votation mode.
61	TEST	I	Test input.
62	M1/NM2	O	Not used.
63	K-PLAY	I	PLAY Key input terminal.
64	K-STOP	I	STOP Key input terminal.
65	BEEP-ON	I	BEEP ON/OFF. “H” = ON.
66 ~ 70	NC	O	Not connected.
71	SON	O	CD system power control output.
72 ~ 80	SEG8 ~ 0	O	Not connected.

IC,uPD789405AGK-A12-9EU

Pin No.	Pin Name	I/O	Description
1	VDD	-	+3 V power supply.
2	BIAS	-	LCD driver power supply.
3 ~ 5	VLC0 ~ 2	-	LCD driver power voltage.
6	VSS1	-	GND.
7 ~ 10	COM0 ~ 3	O	LCD common output.
11 ~ 27	SEG0 ~ 16	O	LCD segment output.
28 ~ 30	NC	-	Not connected.
31	DSL1	O	“H” when DSL1 output.
32	DSL2	O	“H” when DSL2 output.
33	STBY	O	“H” when STBY output.
34	BEEP-ON	O	“H” output when CD BEEP is “ON”.
35	CS	O	E^2P-ROM chip select.
36	B-FULL	O	“L” when “battery level LED-FULL” is illumenated.
37	B-MID	O	“L” when “battery level LED-MID” is illumenated.
38	B-EMP	O	“L” when “battery level LED-EMP” is illumenated.
39	AVDD	-	AD converter analogue power.
40	AVREF	-	AD converter reference power.
41	K-PSB	I	PLAY, STOP, BAND keys input.
42	K-FUNC1	I	KEY input 1.
43	K-FUNC2	I	KEY input 2.
44	BATT-LEVEL	I	BATT level input for battery level indication.
45	HOLD/OFF	I	“L” input when in HOLD mode.
46	REMO-IN	I	Remote control AD figure input.
47	TU-SEL	I	Japan or oversea settings input. “H” = Japan, “L” = oversea.
48	AVSS	-	GND for AD converter.
49	DATA-IN	I	E^2P ROM data input.
50	DATA-OUT	O	E^2P ROM data output.
51	DISP-CS	I	Chip selection input for CD indication data.
52	SK	O	E^2P ROM clock output.
53	BEEP	O	BEEP output (it is fixed due to square-wave output.
54	DISP-DATA	I	CD detection data input.
55	NC	O	Not connected.
56	DISP-CLK	I	Clock input for CD detection data.
57	AM-STEP	I	AM STEP (9K/10K) switch input.
58	K-PLAY	O	“H” output when PLAY key is pressed.
59	K-STOP	O	“H” output when STOP key is pressed.
60	K-OP/CL	I	Cover detection. “L” input when the cover is OPEN.
61	CD-CONT	O	“L” output when CD is ON.
62	P-OFF	O	“L” output when power is off.
63	A-MUTE	O	MUTE output.

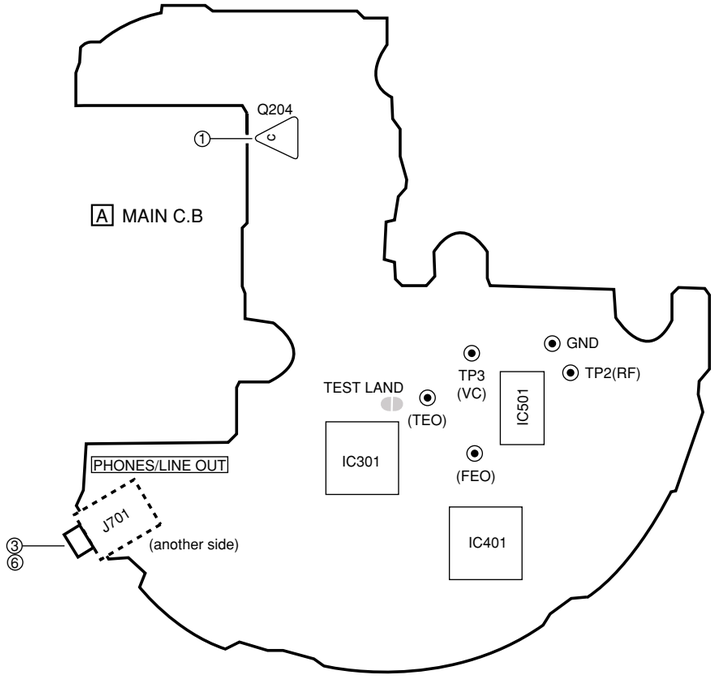
Pin No.	Pin Name	I/O	Description
64	AM-SFT	O	For “DD convertor” oscillator terminal clock shift.
65	DD-SFT	O	For “DD convertor” oscillator terminal clock shift.
66	CLK-SFT	O	“H” output when microcomputer oscillator terminal clock shift.
67	RESET	I	Reset input.
68	XTAL2	O	Connection terminal to oscillator terminal.
69	XTAL1	I	Connection terminal to oscillator terminal.
70	VSS	-	GND.
71	VDD	-	+3 V power supply.
72	XT2	-	Not connected.
73	XT1	-	Connected to GND.
74	VDD	-	Connected to VDD.
75	AC-IN	I	“H” input when AC adapter connected.
76	T-ON	O	“L” output when TUNER is ON.
77	PLL-DI	I	PLL data input.
78	PLL-CE	O	PLL chip enable.
79	PLL-CLK	O	PLL-CLK.
80	PLL-DO	O	PLL data output.

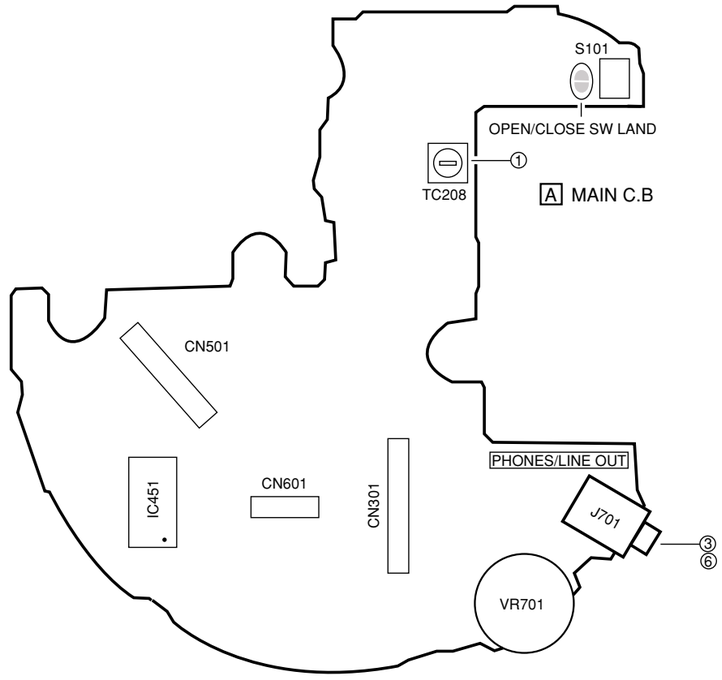
IC,MN662728RPT1

Pin No.	Pin Name	I/O	Description
1	DVDD	-	DRAM interface power (terminal No. 2 to 19).
2 ~ 3	D0 ~ 1	I/O	DRAM data input/output signal 0 ~ 1.
4	NWE	O	DRAM write enable signal.
5	NRAS	O	DRAM RAS control signal.
6 ~ 7	D2 ~ 3	I/O	DRAM data input/output signal 2 ~ 3.
8	NCAS0	O	DRAM CAS control signal 0.
9	NCAS1	O	DRAM CAS control signal 1 (when 1M or 4M x2 are used). DRAM address signal 10 (when 16M DRAM is used).
10 ~ 14	A8 ~ 4	O	DRAM address signal 8 ~ 4.
15	A9	O	DRAM address signal 9.
16 ~ 19	A0 ~ 3	O	DRAM address signal 0 ~ 3.
20	DVSS2	I	Digital circuit GND.
21	DVDD2	I	Digital circuit power.
22	SPOUT	O	Spindle motor driver signal output.
23	TRVM	O	Traverse drive output (+ polar output).
24	TRVP	O	Traverse drive output (- polar output).
25	TRM	O	Tracking drive output (+ polar output).
26	TRP	O	Tracking drive output (- polar output).
27	FOM	O	Focus drive output (+ polar output).
28	FOP	O	Focus drive output (- polar output).
29	FBAL	O	Focus balance adjustment output.
30	TBAL	O	Tracking balance adjustment output.
31	VREF	I	DA output reference voltage (FBAL, TBAL, DSLF2).
32	FE	I	Focus error signal input (analogue input).
33	TE	I	Tracking error signal input (analogue input).
34	RFENV	I	RF envelope signal input (analogue input).
35	OFT	I	Off track signal input. “H” = Off track.
36	NRFDET	I	RF detection signal input. “L” = Detected.
37	BDO	I	Drop out signal input. “H” = Drop out.
38	LDON	O	Laser ON signal output. “H” = ON.
39	ARF	I	RF signal input.
40	IREF	I	Reference current input terminal.
41	ADPVCC	I	AD reference voltage input (analogue input).
42	DSLF	O	DSL loop filter terminal.
43	DSLF2	O	DSL unbalanced current correction.
44	PLLF	O	PLL loop filter terminal.
45	VCOF	O	Jitter free VCO loop filter terminal.
46	AVDD2	I	Analogue circuit power. (for DSL, PLL, VCOF, AD, DA).
47	AVSS2	I	Analogue circuit GND. (for DSL, PLL, VCOF, AD, DA).
48	OUTL	O	Lch audio output.

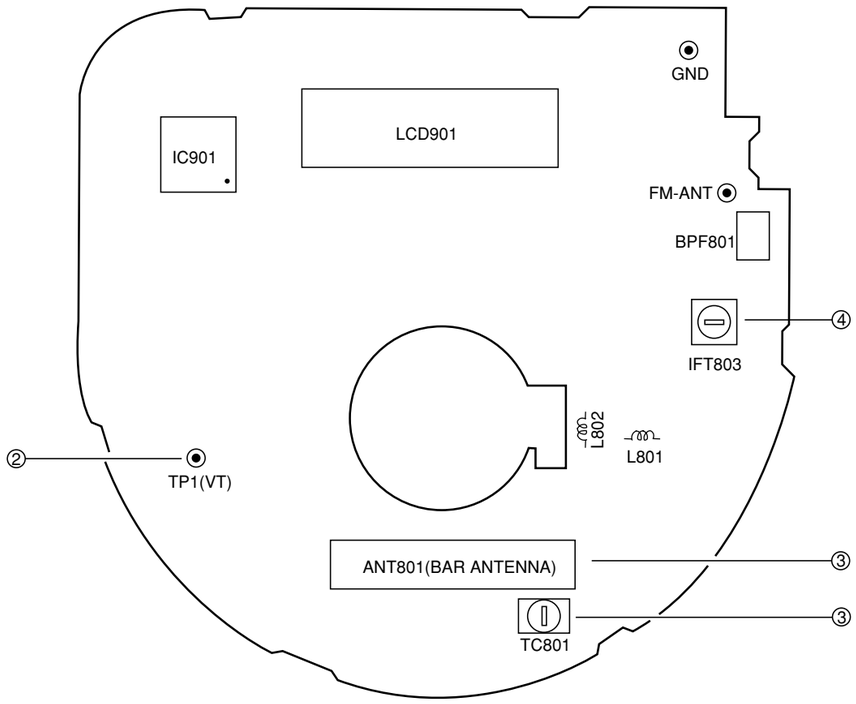
Pin No.	Pin Name	I/O	Description
49	AVSS1	I	Analogue circuit GND.
50	OUTR	O	Rch audio output.
51	AVDD1	I	Analogue circuit power.
52	FSEL	I	Noise filter ON/OFF switch input. “L” = ON, “H” = OFF.
53	TMOD1	I	Terminal mode switch input terminal 1, Normally set to “L”.
54	TMOD2	I	Terminal mode switch input terminal 2, Normally set to “L”.
55	FLAG	O	Flag signal output.
56	CLVS/IPFLAG	O	Command switch: Spindle servo phase synchronizing signal output. “H” = CLV, “L” = Rough servo. Interpolation flag signal output. “H” = Interpolation.
57	EXT0/ISRDATA	I/O	Command switch: Extension input/output port 0, SRDATA input.
58	EXT1/ILRCK	I/O	Command switch: Extension input/output port 1, LRCK input. “H” = Lch audio data, “L” = Rch audio data.
59	EXT2/IBCLK	I/O	Command switch: Extension input/output port 2, BCLK input.
60	TX	O	Digital audio interface output signal.
61	MCLK	I	Microcomputer command clock signal input. (data is latched at loading edge.)
62	MDATA	I	Microcomputer command data signal input.
63	MLD	I	Microcomputer command load signal input. “L” = Load.
64	BLKCK	O	Sub-code block clock signal fBLKCK = 75 Hz. (in normal PLAY mode) /CDTEXT SYNC signal (fDQSY = 300 Hz. (in normal PLAY mode)
65	SQCK/BCLK	I/O	Command switch: Sub-code Q resistor external clock input, SRDATA bit clock output.
66	SUBQ/LRCK	O	Command switch: Sub-code Q data output, L, R discrimination signal output. “H” = Lch audio data, “L” = Rch audio data.
67	DMUTE/SRDATA	I/O	Command switch: Muting input, “H” = MUTE. Serial data output.
68	STAT	O	Status signal (CRC, RESY, CLVS, NTTSTOP, SQOK, FLAG6, SENSE,NFLOCK NTLOCK, BSSEL, SUBQ DATA, CDTEXT DATA, SHOCK RESISTANCE READ DATA.
69	NRST	I	Reset input “L” = Reset.
70	SPPOL	O	Spindle motor drive signal output. (polar output)
71	PMCK	O	88.2 KHz clock signal output.
72	SMCK	O	4.2336 MHz clock signal output.
73	SUBC/SSYNC	O	Command switch: Sub-code serial output, Sector SYNC output.
74	SBCK/64FS	I	Command switch: Clock input for sub-code serial output, 64FS output.
75	NCLDCK	O	Sub-code frame clock signal output. (fCLDCK = 7.35 KHz)
76	NTEST	I	Test terminal normally set to “H”.
77	X1	I	Quartz oscillator circuit input terminal f = 16.9344 MHz.
78	X2	O	Quartz oscillator circuit output terminal f = 16.9344 MHz.
79	DVDD1	I	Digital circuit power.
80	DVSS1	I	Digital circuit GND.

CD TEST MODE





B LID C.B



The servo circuit of this model is designed to be adjustment-free and the adjustment value and disc distinction (CA-DA. CD-R and CD-RW etc.) is adjusted by within the IC. Therefore the adjustment is performed by each TOC reading. The adjustment conditions within the IC of each servo can be monitored in this test mode.

1. How to start the Test Mode
   Starting method of the test mode differ depending upon the type of disc being used. This is because the adjustment values of each servo also differ depending upon the type of disc.
   When using the CD-DA or CD-R
   1) Short-circuit the test land and the OPEN/CLOSE SW land.
   2) Insert the AC plug and install the CD-DA or CD-R disc.
   3) Press the PLAY and STOP buttons in this sequence and read the TOC.
   4) Press the DISPLAY/ENTER button and confirm that all LCD light up.

   When using the CD-RW
   1) Short-circuit the test land and the OPEN/CLOSE SW land.
   2) Insert the AC plug and install the CD-RW disc.
   3) Press the PLAY, STOP and DSL buttons in this sequence and read the TOC. The LCD display should display CD-r at this point.
   4) Press the DISPLAY/ENTER button and confirm that all LCD light up.

   Note 1) If the TOC cannot be read, press the DISPLAY/ENTER button once “Err” has appeared on the LCD, causing all the LCDs to become lit up. The following steps 2 and 3 can be confirmed even if the TOC cannot be read.
   Note 2) By repeatedly pressing the DISPLAY/ENTER button, all LCD will light up and the TOC display will be repeated.
   Note 3) By repeatedly pressing the DSL button, the “CD-d” and “CD-r” displays will be repeated.
   When the LCD displays “CD-d,” ’ CD-DA, CD-R is selected.
   When the LCD displays “CD-r,” ’ CD-RW is selected.
   Note 4) The test mode is cancelled by disconnecting the AC plug and removing the soldering of short land.

2. DISC distinction (confirmation of FE waveform)
   This mode is possible to perform a confirmation of the disc distinction.

   Confirmation method
   1) Press the DSL button and select “CD-d” or “CD-r” (Refer to Note 3).
   2) Install the disc.
   3) Press the MODE button.

The LCD will change as follows.
Example: Test disc: TCD-782, DISC type select: CD-d, Judgement value: 7F, Measurement value: 3D BE.

Judgement value Measurement value
*All numerical values are displayed in HEX

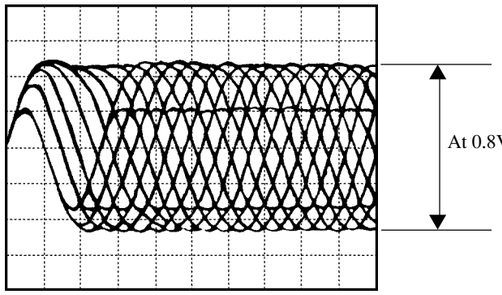
What disc the IC has selected can be understood according to this judgment value.
The decision standard of IC is as follow.

	LCD displays “CD-d”	LCD displays “CD-r”
0 < Judgment value < 10	No disc	No disc
10 < Judgment value < 32	CD-RW	No disc
32 < Judgment value < C8	CD-DA and CD-R	CD-RW
C8 < Judgment value		CD-DA and CD-R

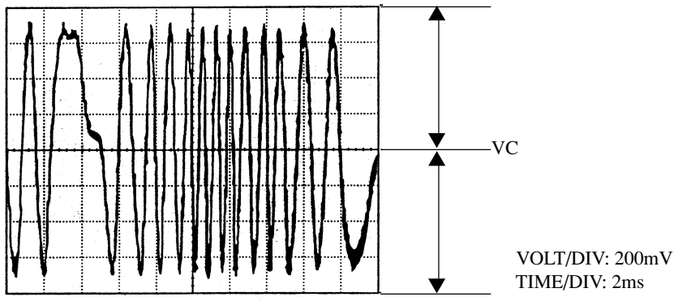
The state of the FE waveform can also be understood from this judgment value.

3. Confirmation of sled movement
By pressing the F. SKIP or B. SKIP button continuously when all LCD light up, it is possible to transfer the pick-up to either the outer circumference or the inner circumference (the LCD is to remain all light up).

4. Confirmation of the RF level
Test point: RF and VC (Vref)
Test disc: TCD-782
Confirm that the RF waveform appears as shown below.



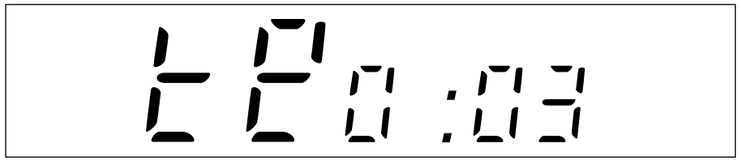
5. Confirmation of tracking balance
Test point: TE and VC (Vref)
Test disc: TCD-782
Press the DSL button while the test disc is playing and confirm that the traverse waveform is as is shown below.



6. Confirmation of each servo
It is possible to confirm the adjustment value of each servo by repeatedly pressing the MODE button while the test disc is playing. The switchover sequence is as stated below.

Confirmation mode OFF -> Focus bias (FB) -> Tracking balance (TB) -> Tracking gain (TG) -> Tracking error offset (TEO) -> Focus gain (FG) -> Focus error offset (FEO) -> Confirmation mode OFF

Example: Tracking error offset (TEO) Adjustment value: 03



Tracking error offset (TEO) display Adjustment value
*Adjustment values are displayed in HEX.

ADJUSTMENT

< TUNER SECTION >

1. DD converter clock adjustment
Settings : • Test point : Q204 Collector
• Ajustment location: TC208
Method : Set to AM603 kHz, 1404 kHz and adjust TC208 so that the test point becomes 360 kHz ± 1 kHz, 410 kHz ± 15 kHz.

2. AM VT Check
Settings : • Test point : TP1 (VT)
Method : Set to AM 531kHz and check that the test point is 1.0V ± 0.5V and set to AM 1602kHz and check the test point is 6.5V ± 1.0V.

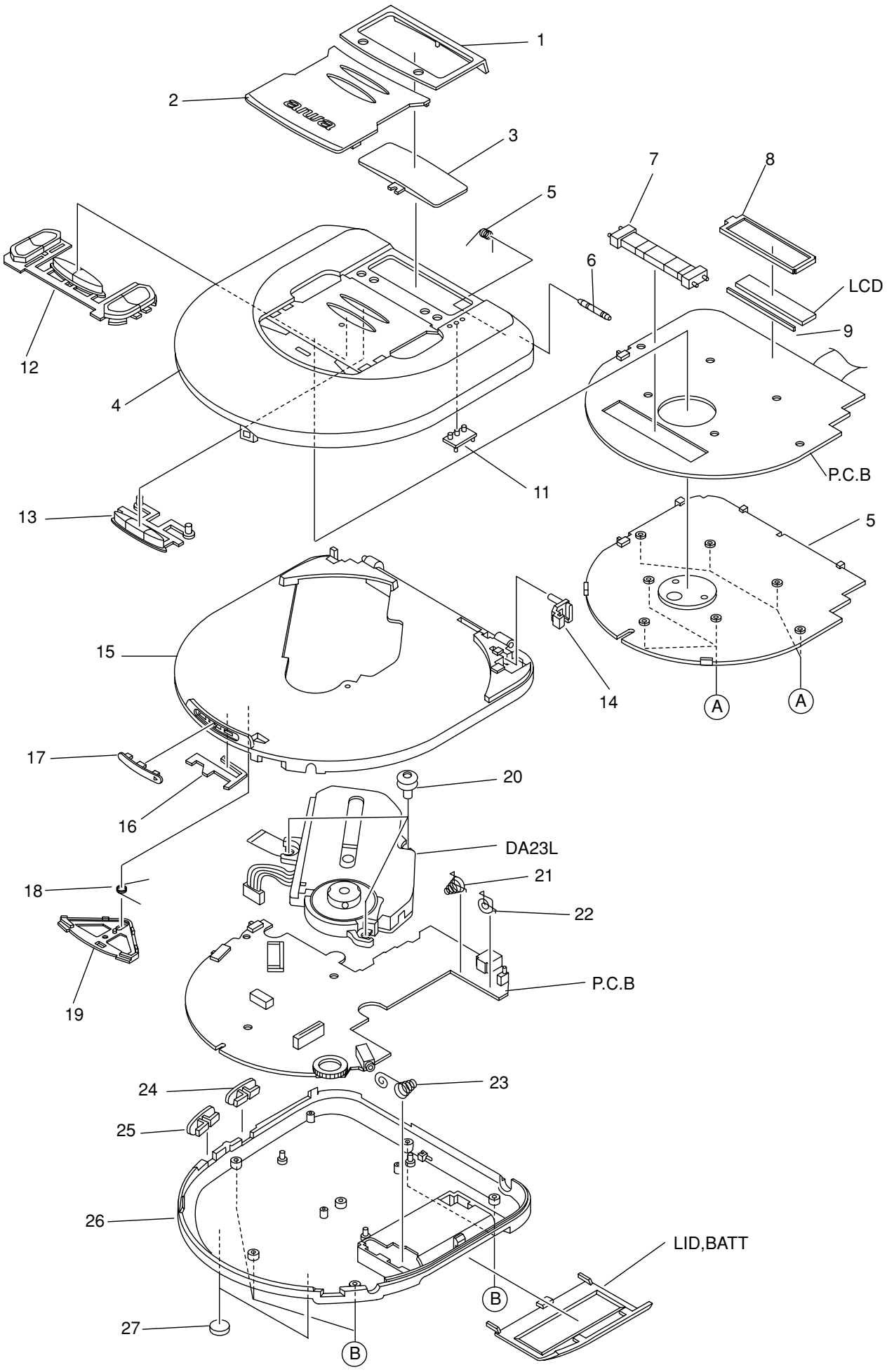
3. AM Tracking Adjustment
Settings : • Test point : HP OUT (VOLUME MAX)
• Adjustment location :
BAR ANTENA.....603kHz
TC801.....1404kHz
* Repeat this adjustment a few times until the wave shape has the maximum amplitude.

4. AM IF Adjustment
IFT803.....999kHz

5. FM VT Adjustment(Lower side)
Settings : • Test point : TP(VT)
• Adjustment location : L801
Method : Set to FM 87.5MHz and adjust L851 so that the test point becomes 1.5 ~ 2.0V.

6. FM Tracking Adjustment
Settings : • Test point : HPOUT (VOLUME MAX)
• Adjustment location :
L802.....87.5MHz
* Repeat this adjustment a few times until the distortion is minimum.

MECHANICAL EXPLODED VIEW 1 / 1



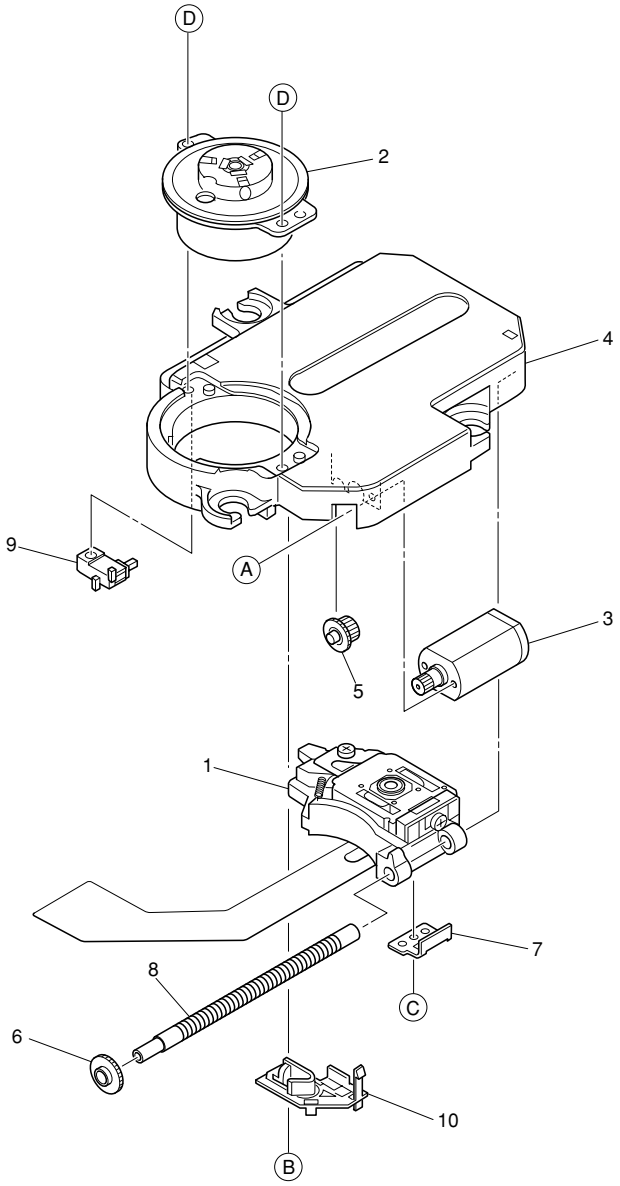
MECHANICAL PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-HC1-006-010		PANEL,DISPLAY
2	8A-HC1-005-010		PANEL,LID CD
3	8A-HC1-007-010		WINDOW,DISPLAY
4	8A-HC1-001-010		LID,CD
5	8A-HC1-201-010		SPR-T,OPEN
6	85-HC6-205-110		SHAFT,LID(300) HK
7	8Z-HC1-610-010		ANT,BAR-ANTENNA
8	8A-HC1-207-010		PLATE,LCD
9	8Z-HC1-209-010		JOINT,LCD ZHC-1
10	8A-HC1-009-010		HLDR,LID CD
11	8A-HC1-015-010		LENS,LED
12	8A-HC1-008-010		KEY,PLAY
13	8A-HC1-014-010		KEY,BAND
14	8A-HC7-018-010		LEVER,OPEN
15	8A-HC1-002-010		CABI,CENTER
16	8A-HC1-203-010		LEVER,OPEN
17	8A-HC1-010-010		KNOB,SL OPEN
18	8A-HC1-202-110		SPR-T,KNOB
19	8A-HC1-204-010		HLDR,OPEN
20	8Z-HC1-225-010		DMPR,MECHA(SP)
21	8A-HC1-206-010		BAT-CONTACT,(-)
22	8A-HC1-205-010		BAT-CONTACT,(+)
23	8Z-HC7-216-010		BAT-CONTACT,(+)(-) (SP)
24	8A-HC1-013-010		KNOB,SL EASS
25	8A-HC1-011-010		KNOB,SL HOLD
26	8A-HC1-012-010		CABI ASSY,BOTTOM
27	8Z-HC4-027-010		FOOT,DIA10
A	87-067-384-010		SCREWVT1.4-3.5HL
B	87-067-869-010		V+1.7-8 HL BLK

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

CD MECHANISM EXPLODED VIEW 1 / 1



CD MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S0-A41-A20-600		PICKUP LASER ASSY
2	SM-10A-108-001		MOTOR ASSY SPINDLE
3	S0-M10-A10-900		MOTOR SLED ASSY
4	S2-311-A12-200		CHASSIS
5	S2-511-A23-200		GEAR MIDDLE
6	S2-511-A23-100		GEAR,SCREW
7	S2-511-A23-400		GEAR,RACK
8	S2-511-A07-900		SPINDLE SCREW
9	S4-S13-A00-200		SW,LEAF
10	S2-451-A18-100		HOLDER GEAR
A	SS-EXE-A04-000		SCR PAN PCS 1.4-2.2
B	SS-GXE-A00-300		SPECIAL SCREW
C	SS-EXE-A14-100		SPECIAL SCREW
D	SS-GXE-A00-202		SPECIAL SCREW M1.7-4.0

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9820572 0251431 Printed in Singapore